SDA: 7.3 day 2 notes NAME: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**General Multiplication Rule:**

\* The probability that events A and B occur:

\*\*Special Case: If A and B are independent

**Example 1:** Suppose you have a bag of skittles with 12 red, 8 blue, 7 green, 9 yellow, and 6 orange candies.

1. What is the probability that you would get 2 red?
2. What is the probability that you would get a red then a blue?

**Example 2:** Given a standard deck of cards, what is the probability that you would be dealt:

1. Two aces?
2. Two hearts?
3. Four spades?
4. A king followed by an ace?
5. A king and an ace?

**Example 3:** Given two standard dice, find the probability that you would roll:

1. Two fives.
2. A three followed by a 6.
3. Neither were a 4.
4. The first was a 5 and the second was not a 5.
5. A 5 and a 6.

**Example 4:** In a bag you have 7 white marbles and 6 red marbles and draw out two marbles.

Tree Diagram:

1. What is the probability that you get 1 red marble?
2. What is the probability that you get at least 1 red marble?

1. What is the probability that you get at least 1 white marble?

**Example 5:** Standard deck of cards – dealt two cards and interested in getting spades

Tree Diagram

1. What is the probability that you would have 1 spade?
2. What is the probability that you would have 2 spades?

1. What is the probability that you would have at least 1 spade?

**Example 6:** On the way to school you have to go through two stop lights. The probability that you will get stopped at the first light is 30%. If you make it through the first light the probability that you will get stopped at the second light is 40%. If you get stopped at the first light the probability that you get stopped at the second light is 20%.

1. What is the probability that you get stopped at least once on the way to school?
2. What is the probability that you only would have to stop at one light?
3. What is the probability that you would get stopped at the second light?
4. What is the probability that you wouldn’t have to stop at all?
5. What is the probability that if you were stopped at the second light you had to stop at the first light?

**Example 7:**

For the last quiz 65% of the students studied for the exam. Of those that studied 75% got an A. Of those that didn’t study 22% got an A.

1. What is the probability that a student studied and got an A?
2. What is the probability that a student didn’t study and didn’t get an A?
3. What is the probability that a student got an A?
4. What is the probability that if a student got an A they had studied for the quiz?
5. What is the probability that if a student got an A they had not studied for the quiz?
6. What is the probability that a student studied given they didn’t get an A on the quiz?

**Example 8:**

A manufacturing company imports a specific part from different companies. Company A supplies 65% of the part, company B supplies 22%, and company C supplies the rest of the parts. The parts must be inspected and it has been found that 5% of parts from A must be rejected, 8% of parts from B must be rejected, and 3% of parts from C must be rejected.

1. What is the probability that a part came from company A and was rejected?
2. What is the probability that a part would be rejected?
3. What is the probability that if a part was rejected that it came from company B?